

DESCRIPTION OF GEOLOGIC MAP UNITS

This map shows the distribution of geologic units south of San Antonio, along Interstate 37 and U.S. Highway 281, in the Leming quadrangle. Geologic units were mapped, and structural elements were measured in the field; where bedrock units are covered by surficial units and vegetation or access is limited, units were interpreted using soil data, well-drilling records, previous mapping, and surveys.

BEDROCK UNITS

SEDIMENTARY UNITS

Qal

Qal—Alluvium. River and stream floodplain deposits, silty sand, mud, channel gravel, rounded pebbles, and cobbles.

Qt

Qt—Fluvialite terrace deposits. Gravel, silt, sand, and clay; variable amounts of sand, silt, and clay in the local sand units. These deposits are mostly above flood level along entrenched streams. Fluvialite characteristics, such as point bars, oxbows, and abandoned-channel segments, are well preserved.

Ecm

Ecm—Cook Mountain Formation. Local beds of fine, glauconitic, marly, argillaceous, and carbonaceous sandstone, siltstone, and claystone; greenish to brown, weathers greenish-gray and white; locally indurated with fine- to medium-grained sandstone; thin, interbedded marine-derived clay beds with marine fossils. Thickness increases toward the south, to about 200 ft in the southwest portion of the map.

Es

Es—Sparta Sand. Very fine to fine-grained sandstone, with minor amounts of interbedded siltstone and clay. Massive, locally cross-bedded, well-sorted, micaceous; interbeds of sandy or silty clay; locally carbonaceous. Light gray to pale orange, occasionally with hard, brown, hematitic, medium- to coarse-grained sandstone. Thickens to the south, to about 150 ft.

Ew

Ew—Weches Formation. Local beds of fine green sand, glauconitic sandstone, siltstone, and claystone; greenish to brown, weathers reddish brown; locally indurated with micaceous fine- to medium-grained sandstone; thin interbedded clay; locally cross-bedded; occasionally hematitic cement and local ironstone concretions; thickness ranges from 0 to 70 ft.

Eqc1 Eqc2

Eqc1, Eqc2—Queen City Sand. Quartz and clay; fine- to medium-grained sandstone, well sorted, massive, occasionally indurated; light to brownish gray, weathers mottled red and white; locally carbonaceous, occasionally cross-bedded; ironstone concretions and hematitic cement common; thickness varies between 100 and 400 ft. Exposed outcrop and parallel cover 40–80 inches thick, Eqc1; residual cover thicker than 80 inches, Eqc2.

Er

Er—Reklaw Formation. Fine- to medium-grained sandstone, siltstone, and clay; abundant hematitic concretions, glauconitic sands and silts; friable, highly indurated, cross-bedded, with occasional mollusk and pelecypod fossils; frequent clay, siltstone, lignitic beds; thickness ranges between 50 and 80 ft.

Ec1 Ec2

Ec1, Ec2—Carrizo Sandstone. Sandstone, medium- to coarse-grained, typically fining toward the top, poorly sorted, friable to locally indurated, noncalcareous, thick bedded; light yellow to orange and brown, weathers yellowish brown; locally iron-oxide banded, surface thickly forested with oak; thickens to the south and west, averaging 1500–2100 ft. Exposed outcrop and parallel residual cover 40–80 inches thick, Ec1; residual cover thicker than 80 inches, Ec2.

MAP SYMBOLS

(All map symbols may not appear on this sheet)

BODY OF WATER

RIVER

INTERMITTENT STREAM / CREEK

HIGHWAY

ROAD / STREET

RAILROAD

OIL or GAS WELL LOCATION

WATER WELL LOCATION

NORMAL FAULT — Showing local normal offset — U, upthrown block; D, downthrown block; with amount of displacement

INFERRED NORMAL FAULT

INFERRED NORMAL FAULT — Location uncertain

CONCEALED NORMAL FAULT

CONCEALED NORMAL FAULT — Location uncertain

INFERRED GEOLOGIC CONTACT

REFERENCES

Brown, T. E., Waechter, N. B., and Barnes, V. E., 1974, San Antonio sheet: The University of Texas at Austin, Bureau of Economic Geology Geologic Atlas of Texas, scale 1:250,000.

Clark, L. W., and Day, J. R., 1929–1931, Internal map sheet, San Antonio sheet 'B'—Areal Geology: Amerada Petroleum Corporation, Tulsa, Oklahoma, scale 1:250,000.

Elliott, B. A., 2013a, Geologic map of the Poteet quadrangle, Texas: The University of Texas at Austin, Bureau of Economic Geology Open-File Map No. 207, scale 1:24,000.

Elliott, B. A., 2013b, Geologic map of the Thelma quadrangle, Texas: The University of Texas at Austin, Bureau of Economic Geology Open-File Map No. 208, scale 1:24,000.

Elliott, B. A., 2018, Geologic map of the Somerset quadrangle, Texas: The University of Texas at Austin, Bureau of Economic Geology Open-File Map No. 236, scale 1:24,000.

U.S. Geological Survey, 1984, Leming quadrangle, Texas (photorevised ed.): U.S. Geological Survey, 7.5-Minute Series, scale 1:24,000.

Waechter, N. B., and Barnes, V. E., 1977, Del Rio sheet: The University of Texas at Austin, Bureau of Economic Geology Geologic Atlas of Texas, scale 1:250,000.

Wright, A. C., 1963, Internal map sheet, San Antonio: Shell Oil Co., Houston, Texas, scale 1:250,000.



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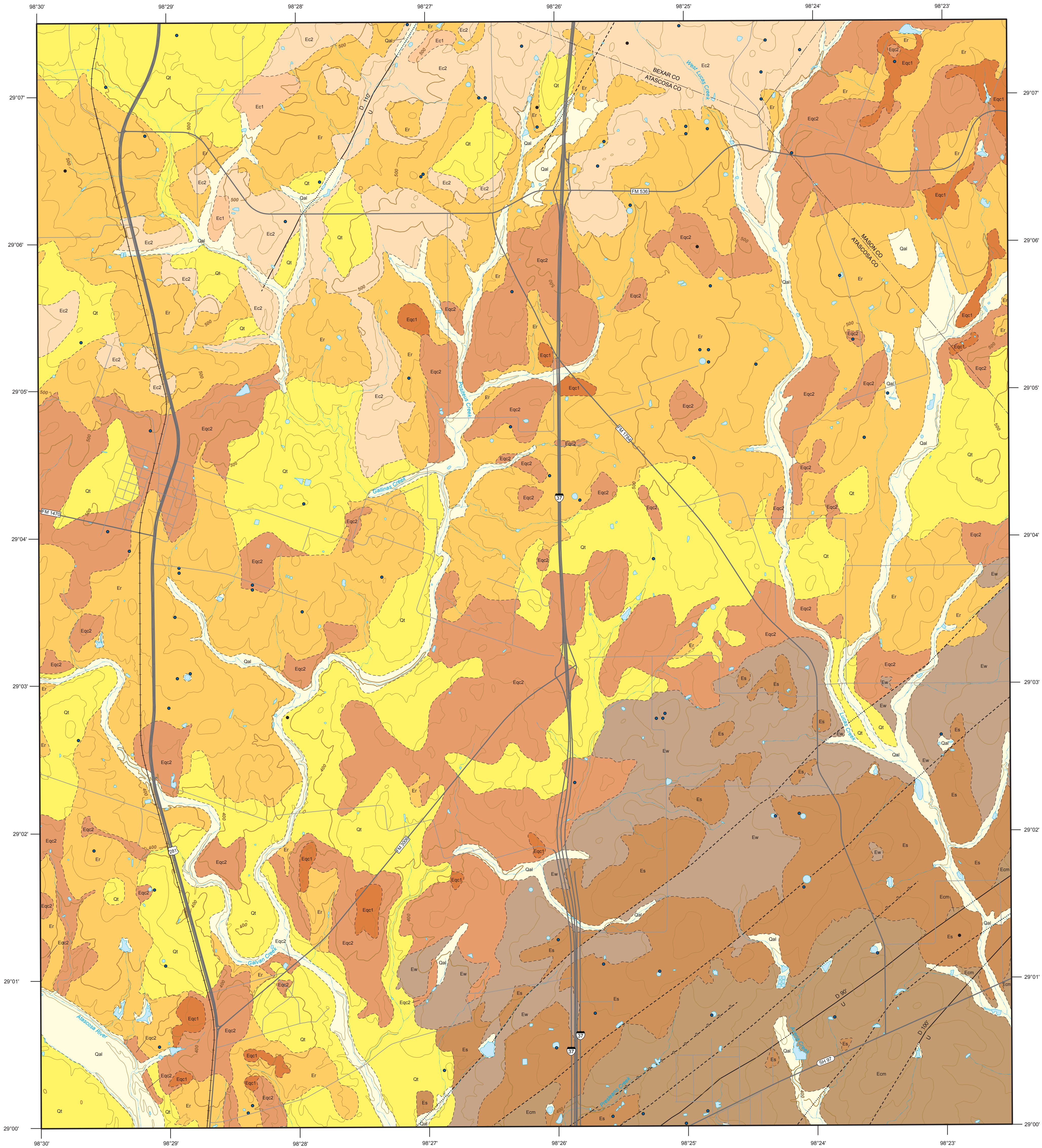
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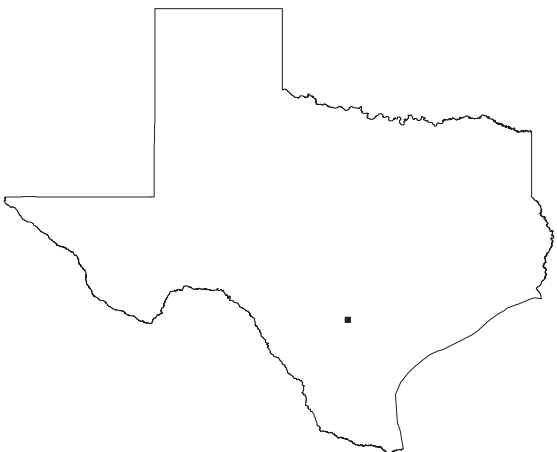
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4 1/2"

APPROXIMATE MEAN
DECLINATION, 2019



SCALE 1:24,000

UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 14N, NAD 83
CONTOUR INTERVAL IS 20 FT
DATUM IS MEAN SEA LEVEL

GEOLOGIC MAP OF THE LEMING QUADRANGLE, TEXAS

Brent A. Elliott

2019

Topographic base map from:

U.S. Geological Survey
(1963 — field checked 1964; photorevised 1984)

Projection:

Universal Transverse Mercator Zone 14N

Datum:

North American Datum of 1983

Bedrock geologic field investigations by:

Brown and others (1974)

Waechter and Barnes (1977)

Elliott (2013a, 2013b, 2018)

Regional structures mapped by:

Amerada Petroleum
(Clark, L. W., and Day, J. R., 1929–1931)

Shell Oil Company
(Wright, A. C., 1963)